Instructions

for Installing and Operating

Belt Pulley and Power Take-off Attachments

Belt Pulley and Power Take-off—No. 351 233 R91
Power Take-off—No. 351 234 R1
Belt Pulley—No. 351 441 R91

on the

Farmall Cub

Rely on your International Harvester dealer when in need of skilled mechanical service or IH service parts.

INTERNATIONAL HARVESTER COMPANY
180 NORTH MICHIGAN AVE. CHICAGO 1, ILLINOIS, U.S.A.

351 233 R91 - Belt Pulley and Power Take-Off Attachments

351 234 R91 - Power Take-Off Attachment

351 441 R91 - Belt Pulley Attachment (For Tractors already equipped with Power Take-Off Attachment 351 234 R91).

The belt pulley and power take-off may be had as a unit attachment. The power take-off attachment may be had separately and the belt pulley attachment can also be supplied separately for tractors already equipped with the power take-off attachment.

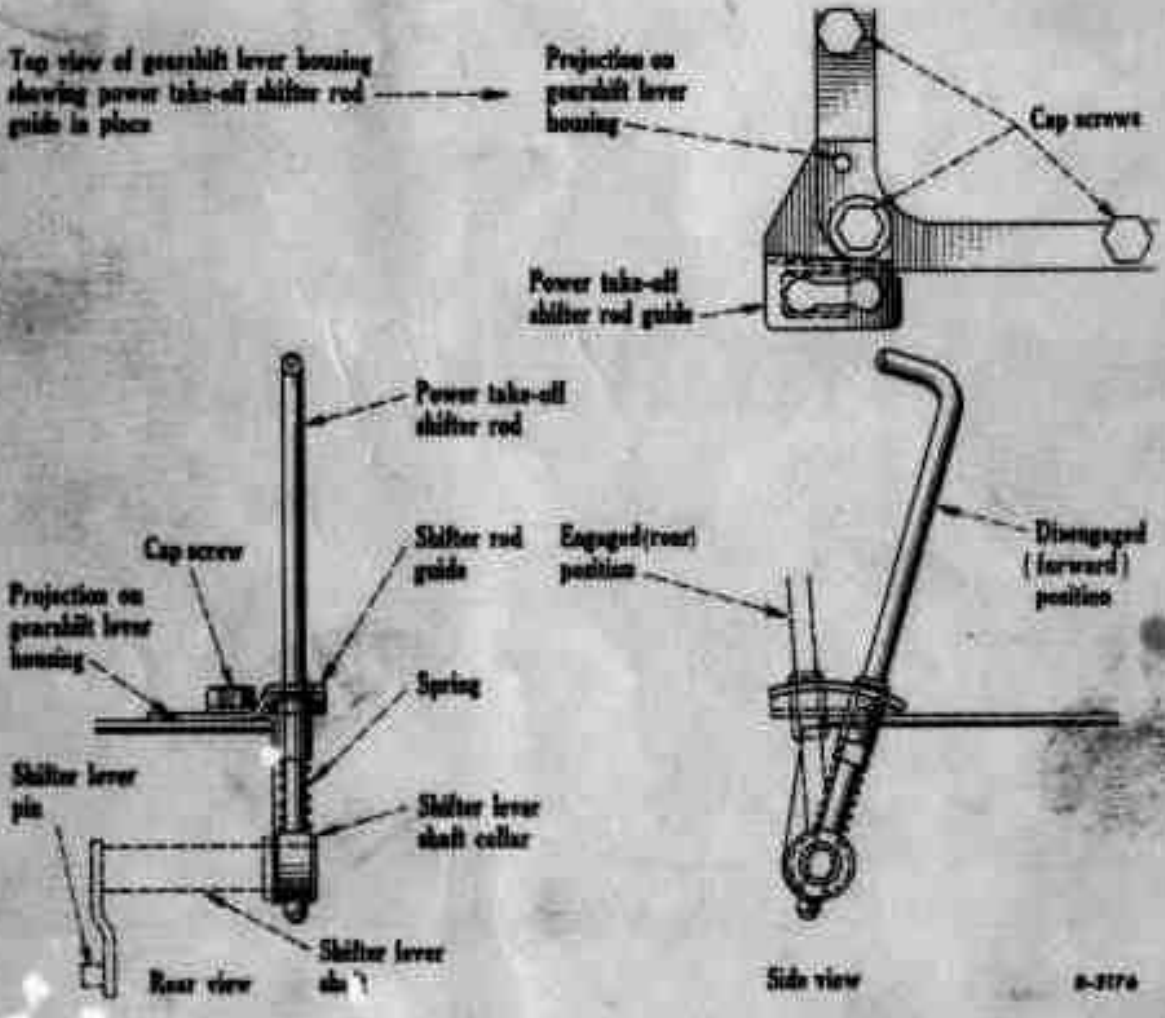


Fig. 1 - Power Take-off Shifter Rod Assembled to the Shifter Lever Shaft.

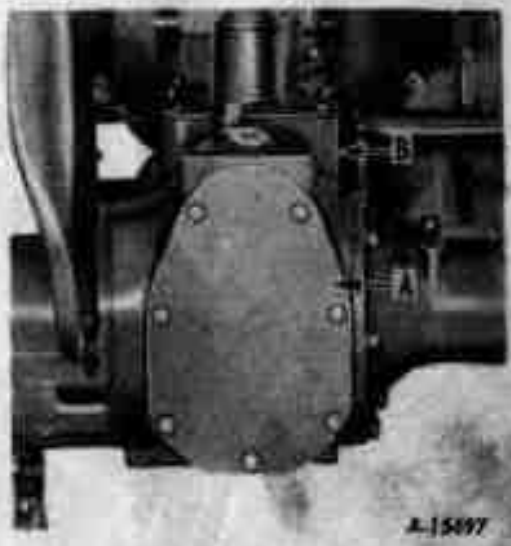
Installation

Belt Pulley and Power Take-Off Attachment (351 233 R91)

1. Remove the transmission case drain plug, *Illust. 2*, and allow the lubricant to drain completely, then replace the drain plug.

2. Remove the transmission case rear cover "A," *Illust. 3*, and knock out the shifter shaft bearing expansion plug on the side of the transmission case at "B." Insert the power take-off shifter lever shaft through this hole from the inside of the transmission case.

3. Slip the felt seal over the shifter lever shaft and set it in the recess on the outside of the transmission case. Place the shifter lever collar on the end of the shaft and line up the hole with the hole in the shaft.

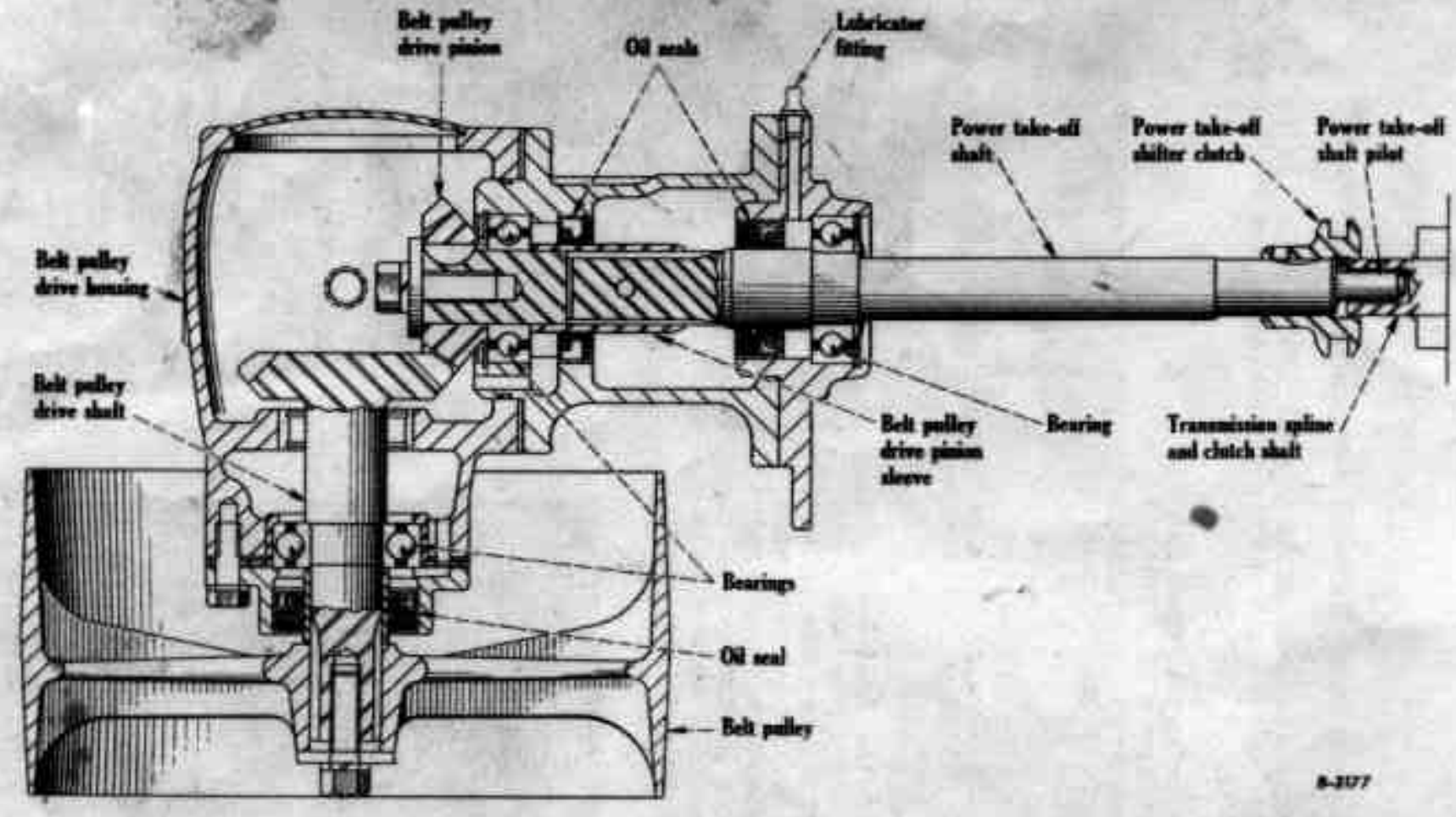


Illust. 3 - Transmission Rear Cover.

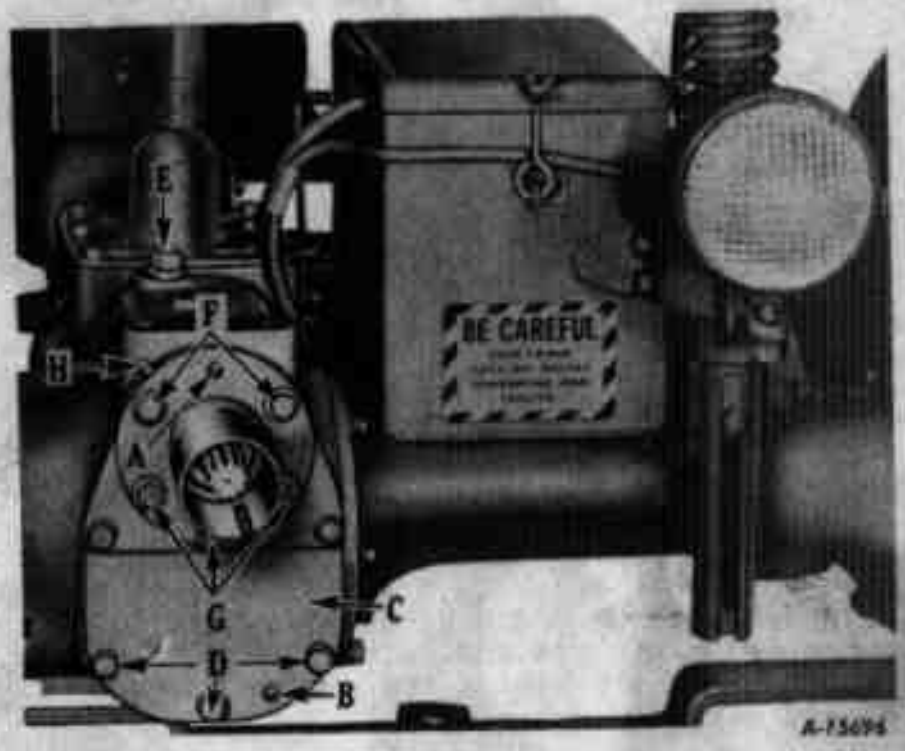
Illust. 2 - Transmission Case Drain Plug.

Place the shifter rod spring on the bottom of the power take-off shifter rod; insert the rod through the hole in the shifter lever collar and shaft and secure with cotter pin, *Illust. 1*.

4. Drive the 1-1/16-inch dowel pin in the hole in the transmission case at "A," *Illust. 3*, and allow it to project 9/16-inch from the case. Drive the 3/4-inch dowel pin in the hole in the transmission case at "B" and allow it to project 1/4-inch from the case. Assemble the power take-off adapter "C" with adapter gasket to the transmission case and fasten



Illust. 4 - Cross Sectional view of the Belt Pulley and Power Take-off.



Illust. 5 - Power Take-off Assembled on Tractor.

securely with the three 3/8 N.C. x 3/4-inch cap screws "D" and lock washers.

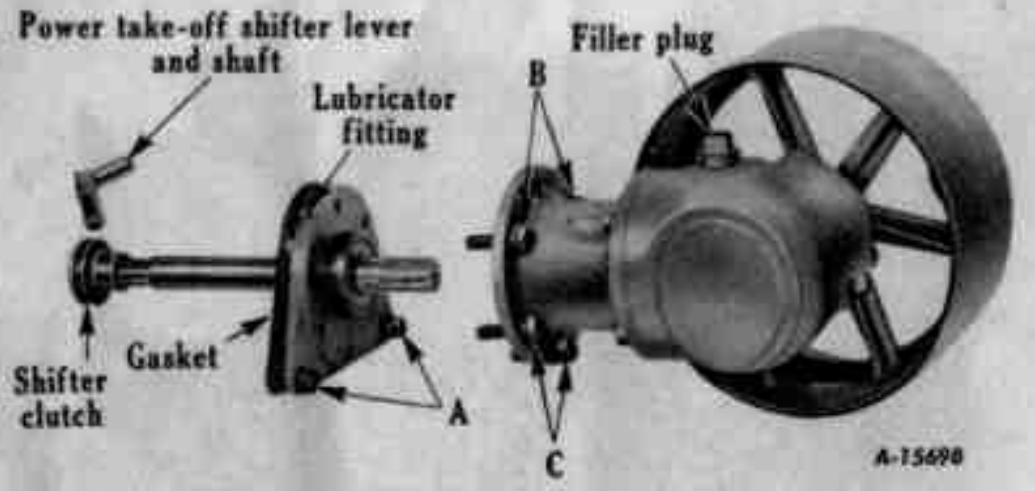
5. Remove the transmission oil filler plug "E," *Illust. 5*, and use the opening as an inspection hole when engaging the shifter lever with the shifter clutch.

Insert the power take-off assembly through the hole in the adapter plate and engage the pin on the shifter lever with the groove in the shifter clutch. Then move the assembly forward and insert the pilot end of the power take-off shaft into the rear end of the transmission drive shaft, *Illust. 4*.

6. Fasten the power take-off assembly, with gasket in place, to the transmission case with the two 3/8 N.C. x 1-inch cap screws "A," *Illust. 6*, and lock washers.

7. Remove the cap screw, *Illust. 1*, in the rear corner of the gearshift lever housing. Slip the shifter rod guide down over the shifter rod and place the small hole over the projection on the gearshift lever housing. Replace the cap screw by inserting it through the large hole in the shifter rod guide and tighten securely.

8. Apply a coating of grease to the power take-off splined shaft and the female spline in the belt pulley attachment.



Illust. 6 - Belt Pulley and Power Take-off Assemblies.

9. Slide the belt pulley assembly onto the power take-off shaft. Insert the two 3/8 N.C. x 1-5/8-inch cap screws "B," *Illust. 6*, and the three 3/8 N.C. x 1-3/8-inch cap screws "C." Use the plain washers and lock washers furnished, placing the lock washers behind the plain washers. Tighten all cap screws securely.

10. Refill the transmission case with 3-1/2 pints of SAE 90 transmission lubricant.

Lubrication

Remove the belt pulley housing filler plug, *Illust. 6*, and pour 1/3 pint of SAE 90 transmission lubricant into the belt pulley housing. Apply 2 or 3 strokes of pressure gun grease (chassis lubricant) to the power take-off shaft lubricator fitting "H," *Illust. 5*. Refer to the lubrication guide in your tractor "Owner's Manual" for more information.

NOTE: A package containing three 3/8 N.C. x 1-inch cap screws and two 3/8 N.C. x 1-1/4-inch cap screws is furnished with this attachment for use when changing over from belt work to power take-off work. Refer to your "Owner's Manual" for change over instructions.

Power Take-Off Attachment (351 234 R91)

1. Remove the transmission case drain plug, *Illust. 2*, and allow the lubricant to drain completely, then replace the drain plug.

2. Remove the transmission case rear cover "A," *Illust. 3*, and knock out the shifter shaft bearing expansion plug on the side of the transmission at "B." Insert the power take-off shifter lever shaft through this hole from the inside of the transmission case.

3. Slip the felt seal over the shifter lever shaft and set it in the recess on the outside of the transmission case. Place the shifter lever collar on the end of the shaft and line up the hole with the hole in the shaft.

Place the shifter rod spring on the bottom of the power take-off shifter rod; insert the rod through the hole in the shifter lever collar and shaft and secure with cotter pin, *Illust. 1.*

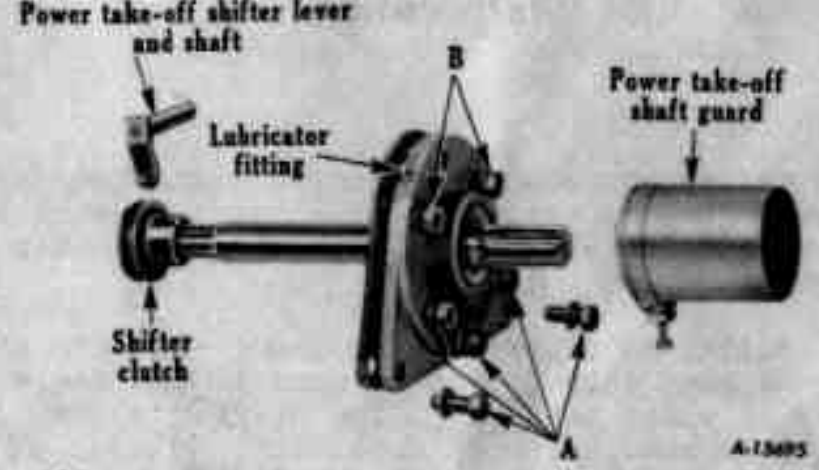
4. Drive the 1-1/16-inch dowel pin in the hole in the transmission case at "A," *Illust. 5,* and allow it to project 9/16-inch from the case. Drive the 3/4-inch dowel pin in the hole in the transmission case at "B" and allow it to project 1/4-inch from the case. Assemble the power take-off adapter "C" with adapter gasket to the transmission case and fasten securely with the three 3/8 N.C. x 3/4-inch cap screws "D" and lock washers.

5. Remove the transmission oil filler plug "E," *Illust. 6,* and use the opening as an inspection hole when engaging the shifting lever with the shifter clutch.

Insert the power take-off assembly through the hole in the adapter plate and engage the pin on the shifter lever with the groove in the shifter clutch. Then move the assembly forward and insert the pilot end of the power take-off shaft into the rear end of the transmission drive shaft, *Illust. 4.*

6. Fasten the power take-off assembly, with gasket in place, to the transmission case with the five 3/8 N.C. x 1-inch cap screws and lock washers "A," *Illust. 7,* and the two 3/8 N.C. x 1-1/4-inch cap screws "B" and lock washers. Use plain washers in front of the lock washers on the center cap screws.

7. Remove the cap screw, *Illust. 1,* in the rear corner of the gearshift lever housing. Slip the shifter rod guide



Illust. 7 - Power Take-off Assembly.

down over the shifter rod and place the small hole over the projection on the gearshift lever housing. Replace the cap screw and lock washer, inserting the cap screw through the larger hole in the gearshift rod guide and tighten securely.

8. Apply 2 or 3 strokes of pressure gun grease (chassis lubricant) to the power take-off shaft lubricator fitting, *Illust. 7.*

Belt Pulley Attachment (351 441 R91)

This attachment is for tractors already equipped with Power Take-off Attachment (351 234 R91).

1. To install, remove the two 3/8 N.C. x 1-1/4-inch cap screws "F," *Illust. 5,* and the three 3/8 N.C. x 1-inch cap screws "G." Apply a coating of grease to the power take-off splined shaft and the female spline in the belt pulley attachment.

2. Slide the belt pulley assembly onto the power take-off shaft. Insert the two 3/8 N.C. x 1-5/8-inch cap screws at "B," *Illust. 6,* and the three 3/8 N.C. x 1-3/8-inch cap screws at "C." Use the plain washers and lock washers furnished, placing the lock washers behind the plain washers. Tighten all cap screws securely.

3. Remove the belt pulley housing filler plug, *Illust. 6,* and pour 1/3 pint of SAE 90 transmission lubricant into the belt pulley housing. Refer to the lubrication guide in your tractor "Owner's Manual" for more information.

Operation

The belt pulley and power take-off are started and stopped by the same engine clutch as the tractor. Be sure to disengage the engine clutch before moving the power take-off shifter rod.

The belt pulley is driven by the power take-off shaft; therefore the same shifter rod is used to operate either the belt pulley or power take-off. The shifter rod should always be in the disengaged (forward) position, *Illust. 8,* when the belt pulley or power take-off are not in use.

BELT PULLEY AND POWER TAKE-OFF

Illust. 8 - Operating the Belt Pulley and Power Take-off.

Operating the Belt Pulley or Power Take-Off with the Tractor Standing Still.

1. The transmission gearshift lever must be in neutral position.

2. Move the engine speed control lever back to low idle speed.

3. Depress the clutch pedal to disengage the engine clutch.

4. Press down on the shifter rod, *Illust. 8*, and move it back to the engaged position; release the shifter rod and allow it to lock in place.

5. Slowly release the clutch pedal.

Static electricity in tractors equipped with pneumatic tires doing belt work - Static electricity generated by belt work can be discharged harmlessly by attaching a chain to the tractor and letting it touch the ground.

OPERATING THE POWER TAKE-OFF WITH TRACTOR IN MOTION

Follow the first four steps outlined on page 9, then release the power take-off shifter rod and allow it to lock in place. Keep your foot pressed down on the clutch pedal (in the disengaged position), advance the engine speed control lever and move the transmission gearshift lever to the speed that is desired to run the tractor. Slowly release the clutch pedal, which will start the tractor in motion with the power take-off in operation.

When the power take-off shaft is not in use, always keep it covered with the power take-off shaft guard.

GENERAL DIMENSIONS

Power take-off shaft connection is a 15/16-inch pitch diameter, 10 tooth involute spline with a 30° pressure angle, machined for outside diameter fit, the dimensions of which are shown in *Illust. 9.*

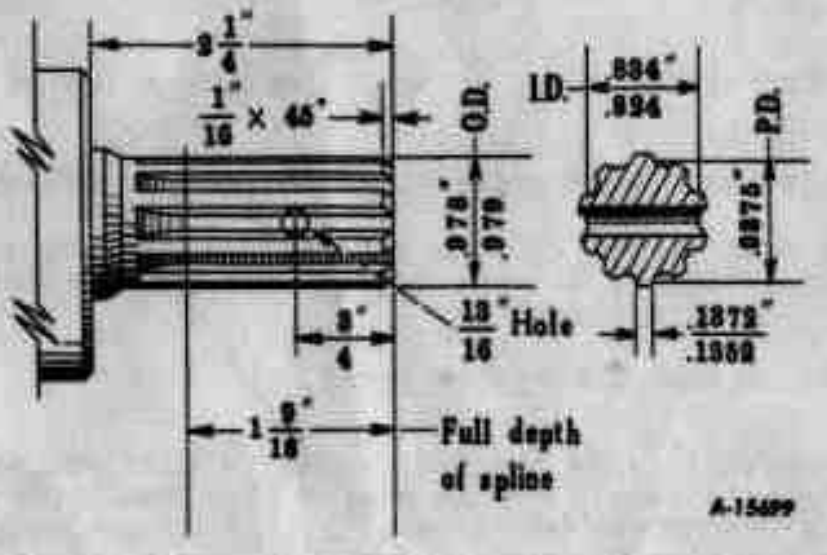
Power take-off shaft governed speed . . . . . 1600 r.p.m.

Direction of rotation (looking at rear of tractor) . . . . . Counterclockwise

Center line of power take-off shaft above rear axle center line . . . . . 10.085 in.

Center line of power take-off shaft to left of tractor center line . . . . . 7-3/8 in.

End of power take-off shaft in rear of rear axle center line . . . . . 7-9/16 in.



Illust. 9 - Power Take-off Shaft Spline Dimensions.

BELT PULLEY SPECIFICATIONS

Diameter (Inches)	Face Width (Inches)	Pulley Speed (R.P.M.)	Belt Speed (Feet per Minute)
• 9	4-1/2	1322	3114
7-5/8	4-1/2	1322	2638

• Regularly supplied with belt pulley attachment.

INTERNATIONAL HARVESTER

1 004 720 61.. 11-13-42-88.

PRINTED IN UNITED STATES OF AMERICA